

For The City of Washington

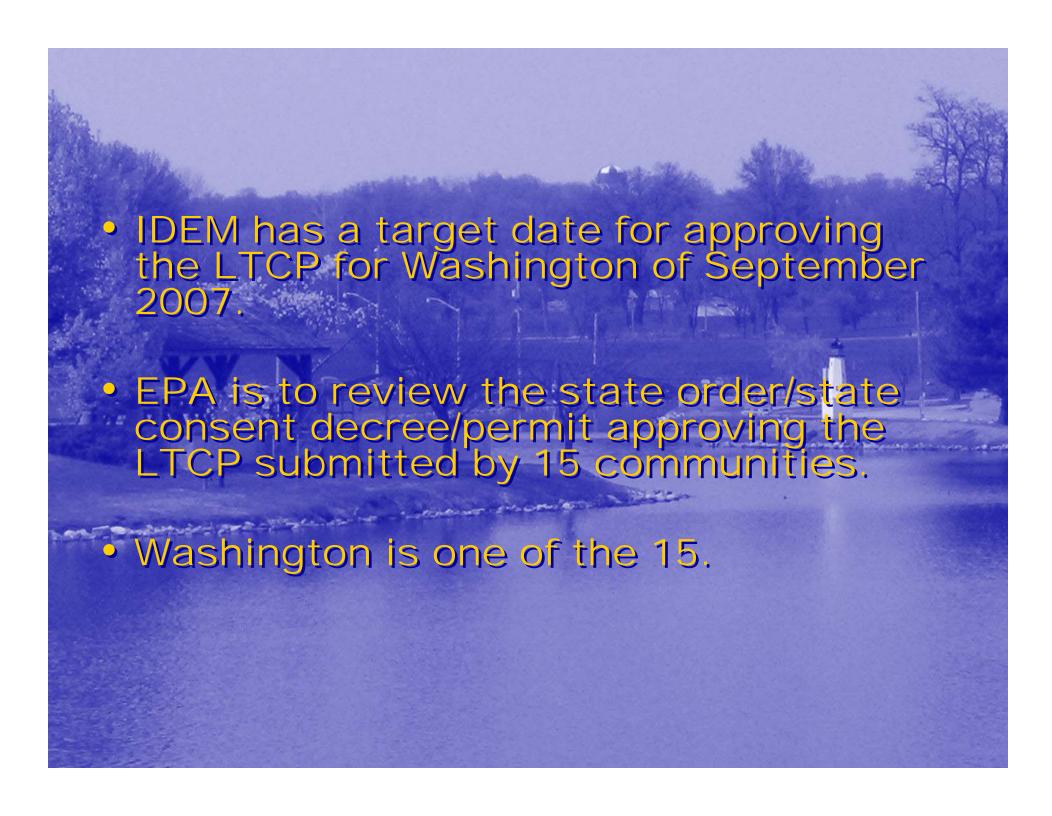
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With the help of
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Midwestern Engineers



 Indiana has 107 CSO communities (14%)

 These vary in size from Ridgeville and Royal Center each approx 840 pop, to Indianapolis with nearly 1 million pop.



Didn't We already submit a LTCP?

- Yes Washington Submitted a LTCP to IDEM in June 2002.
- IDEM began it's review in August 2002
- In January 2007 IDEM sent a letter with their comments.

Why is it being updated?

 The LTCP is being updated to respond to IDEM's review comments.

 The updated LTCP will address three conditions that have significantly changed since 2002

What Conditions have changed?

 Change in IDEM guidance on CSO treatment facilities

Cost Escalation

Washington's Early Action Project (EAP)



- The LTCP was prepared in 2002
- 2002 IDEM Guidance Document stated the goal for elimination and/or treatment as;

""no more than an average of 4 overflow events per year that do not receive the minimum treatment of primary clarification, solids and floatables disposal, and disinfection.

Or,

The elimination or capture for treatment of no less than 85% by volume of the combined sewage collected in the . . . system . . . on a system-wide annual average basis"

 Washington's LTCP was prepared in accordance with this guidance.

• The selected plan consisted of partial separation (elimination) of CSO's, with the remainder to be captured for treatment at a new CSO facility.



- In October 2006 IDEM issued a draft CSO Treatment Facility Guidance.
- In IDEM's review letter they state;

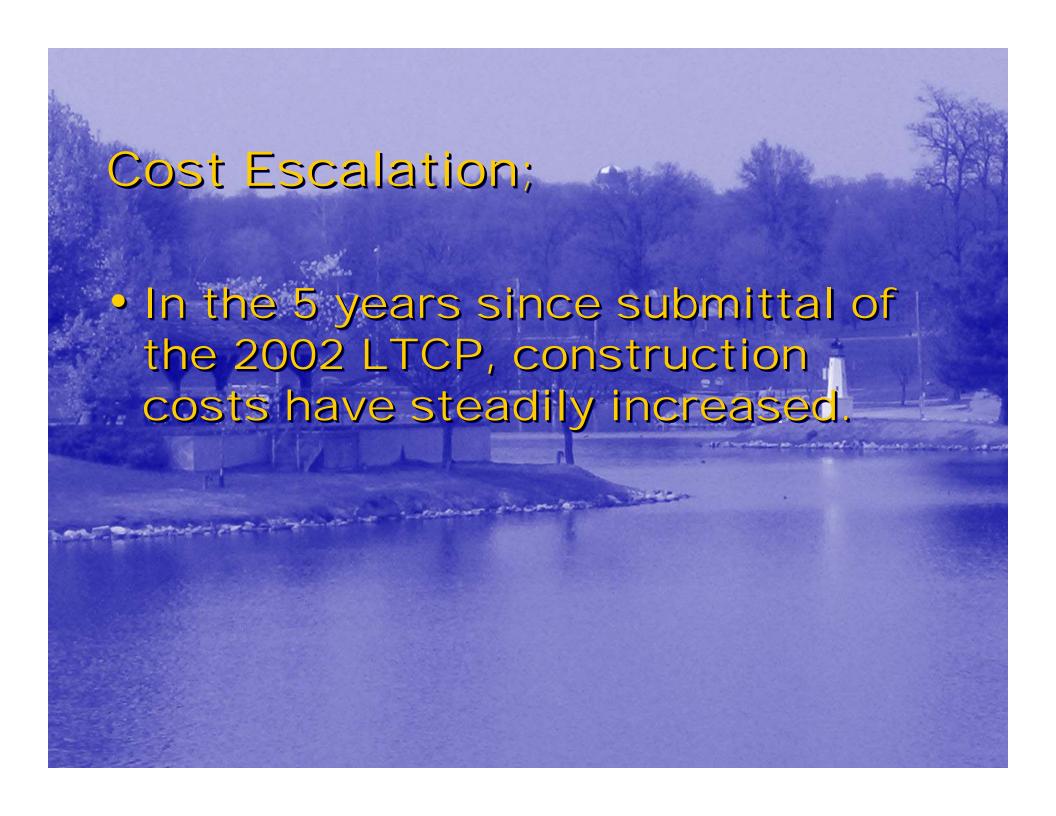
"IDEM requests that Washington Utilize the . . criteria outlined in the CSO Treatment Facility guidance. . .IDEM will accept alternatives . . that are consistent with these design standards"



 All flows generated for storms up to 1 yr-1 hr be eliminated or captured for treatment at the <u>Biological</u> <u>Treatment Facility</u>, and

- All flow generated for storms of 1 yr /1hr up to 10 yr/1hr be eliminated or captured for treatment equivalent to primary clarification and disinfection, and
- All flows generated for storms greater than 10 yr/1 hr be treated as best as possible.

The 2002 LTCP does not meet the Biological Treatment Requirement.





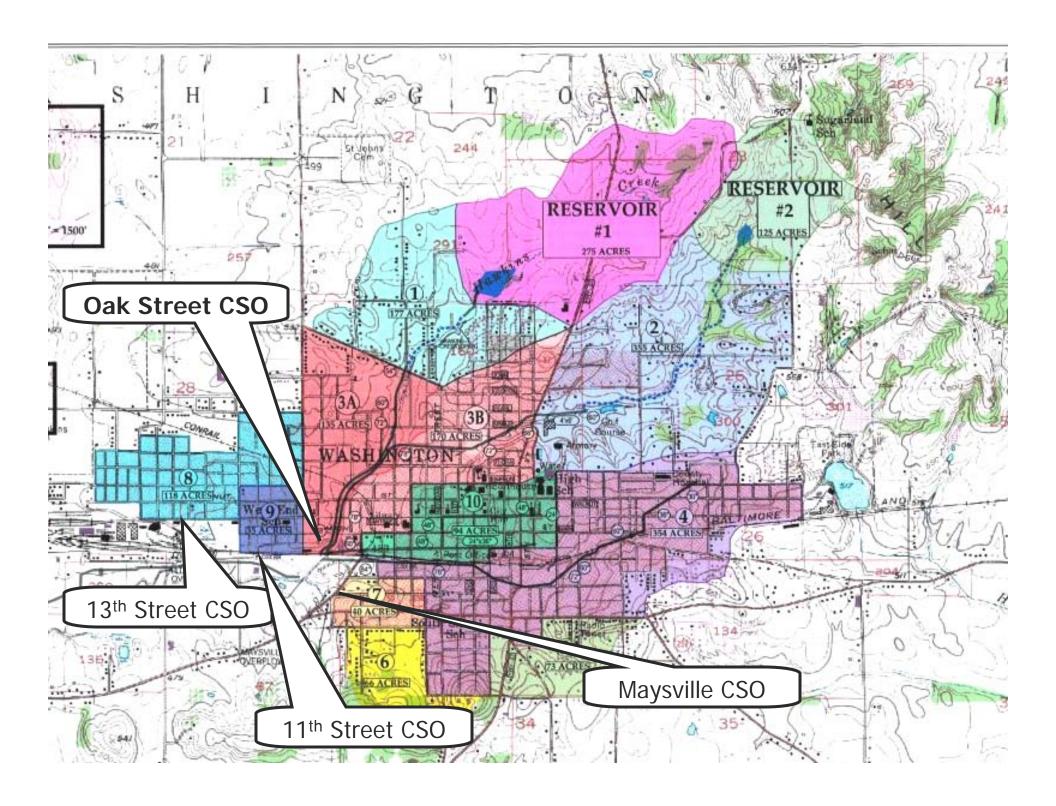
- In the 5 years since submittal the City has proceeded with an EAP.
 - Relocation of 11th and 13th street CSO's and construction of floatables removal facilities
 - Improvements at the Wastewater
 Treatment Plant to increase its capacity.



- How does our system work?
- What is our problem?
- What are our goals?
 - What solutions did we consider?
 - What are we going to do?
 - How much will it cost?
 - When will it be done?

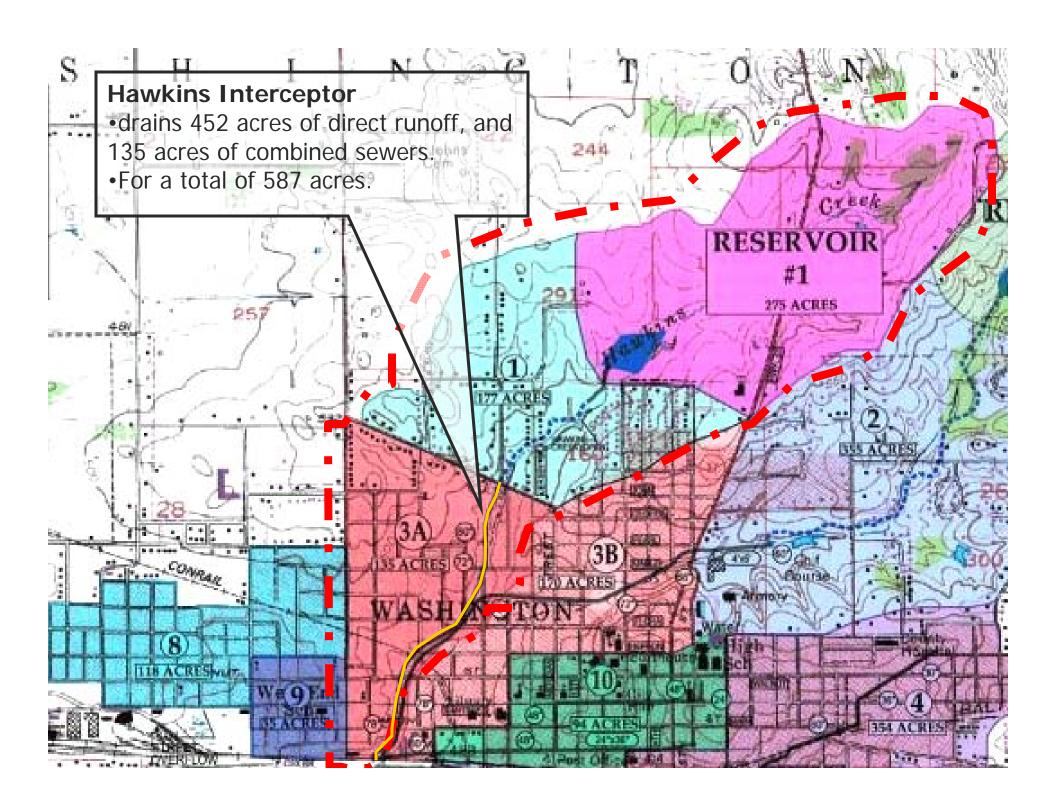
How does our System Work?

- Washington has one major and three minor CSO outfalls
- The major is called the Oak Street CSO
- The minor CSO outfalls are;
 - Maysville CSO
 - 11th Street CSO
 - 13th Street CSO

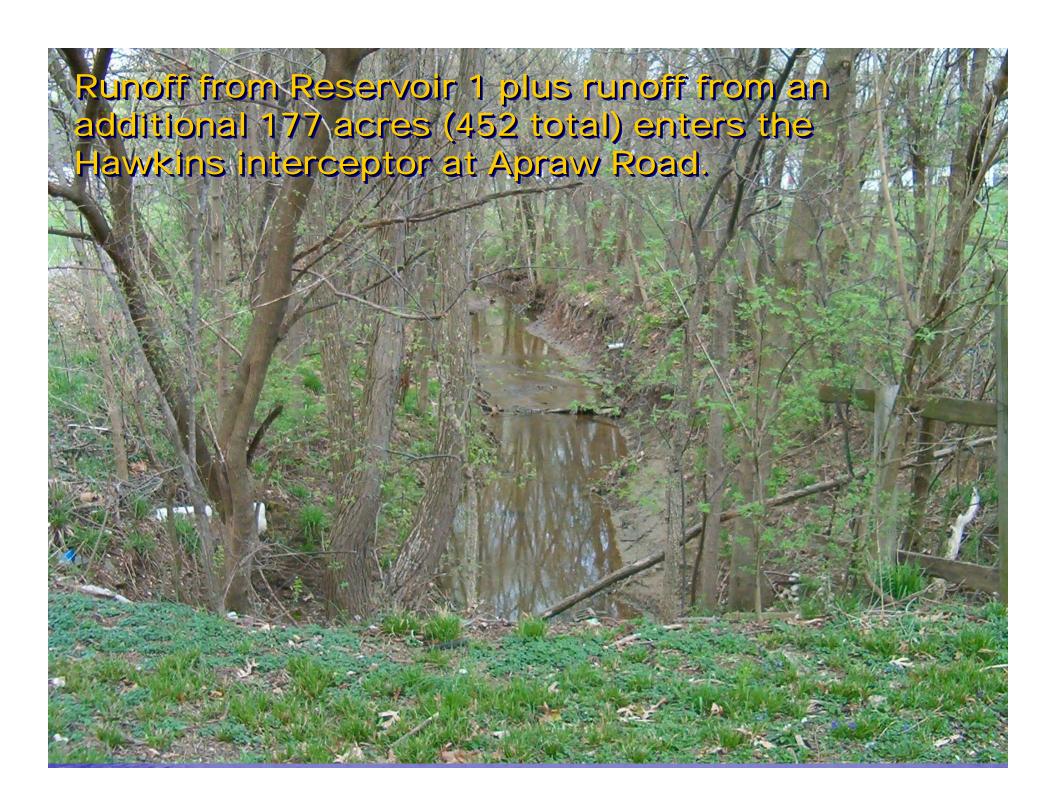




- The Oak Street CSO is located at the junction of four large interceptor sewers and one small sewer
 - 78" diameter Hawkins Interceptor
 - 78" diameter Golf Course Interceptor
 - 54" diameter Downtown Interceptor
 - -84" diameter Railroad Interceptor
 - 8" diameter dry weather sewer from the Maysville CSO



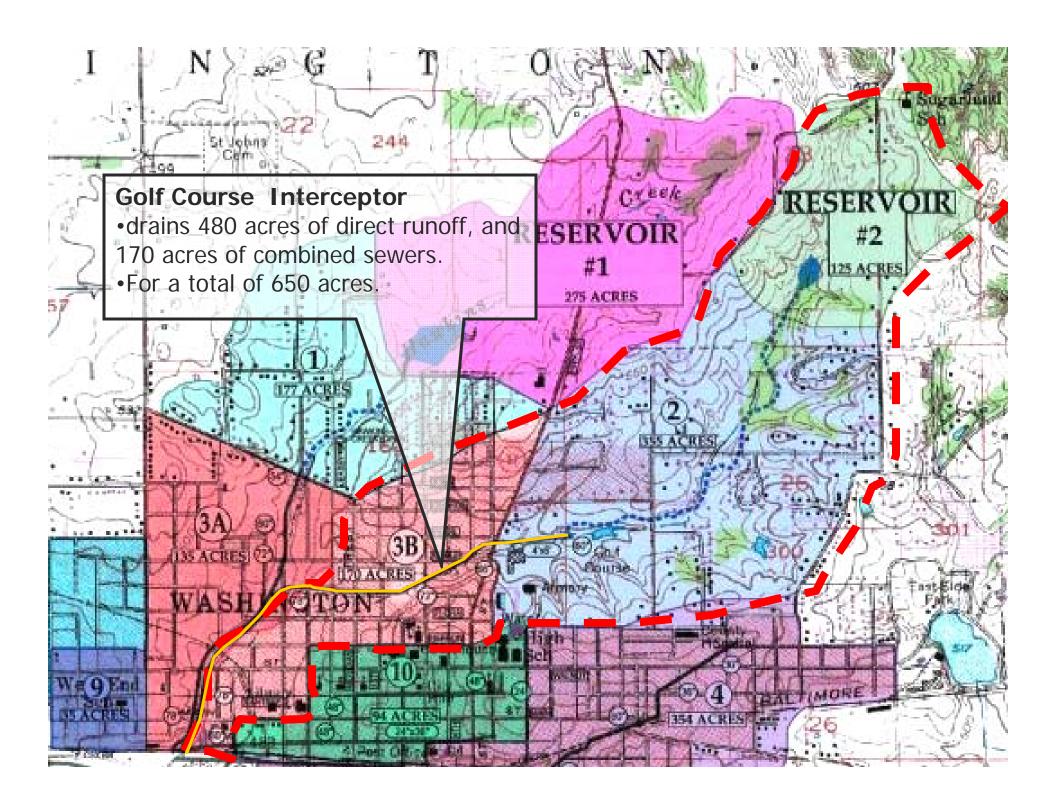




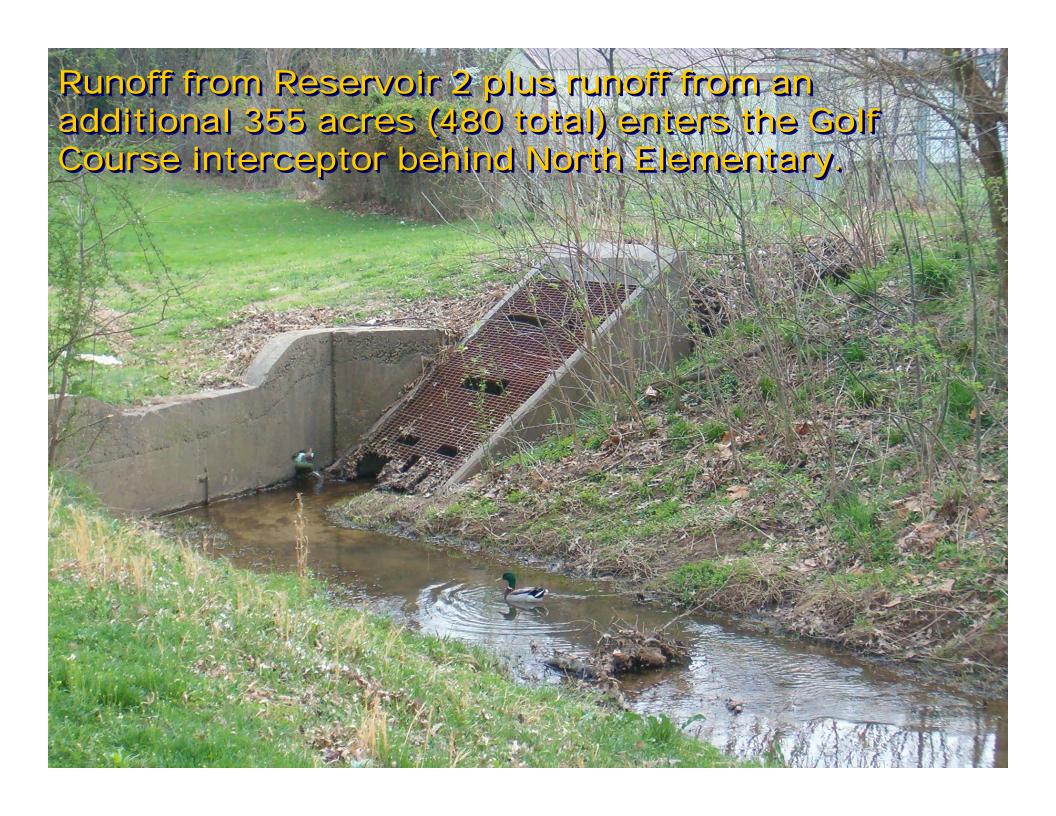
The Hawkins interceptor was built in the 1930's and enclosed Hawkins creek from Apraw road to Oak street.

The 78" diameter interceptor also receives Combined Sewage from 135 acres of residential area.

A total of 587 acres drains into the Hawkins interceptor.





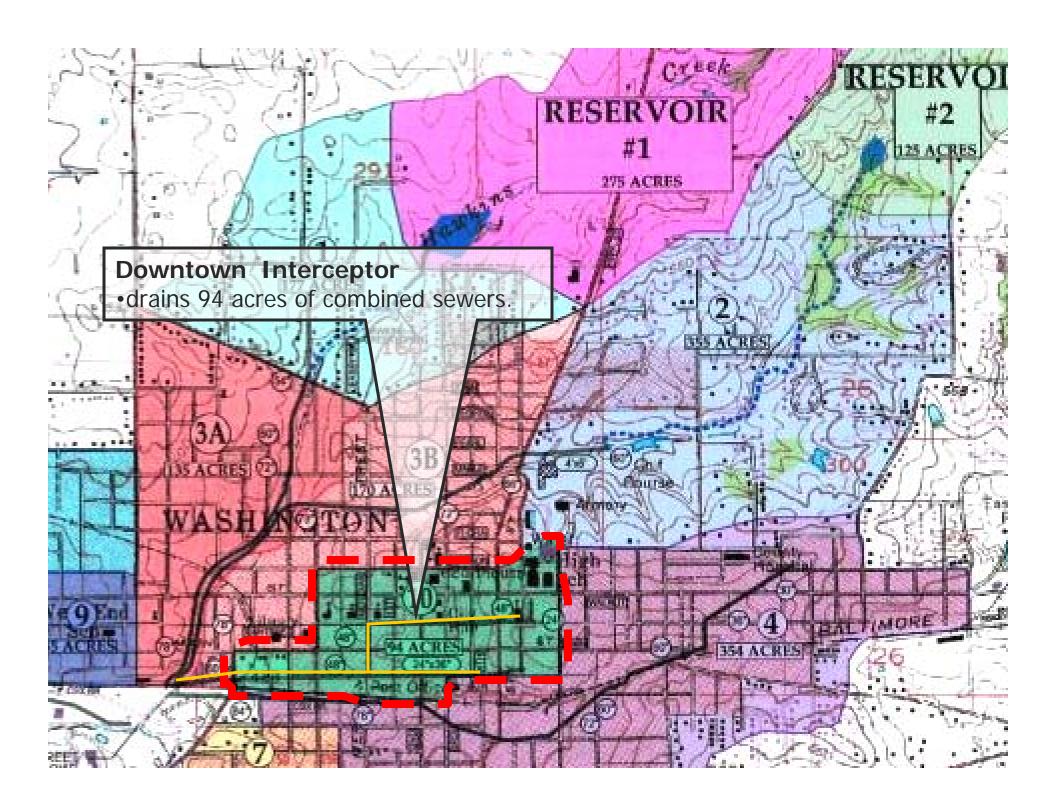


The golf course interceptor was built in the 1930's and enclosed a tributary to Hawkins creek from the US 57 to Oak street.

Later this extended past the school to the golf course.

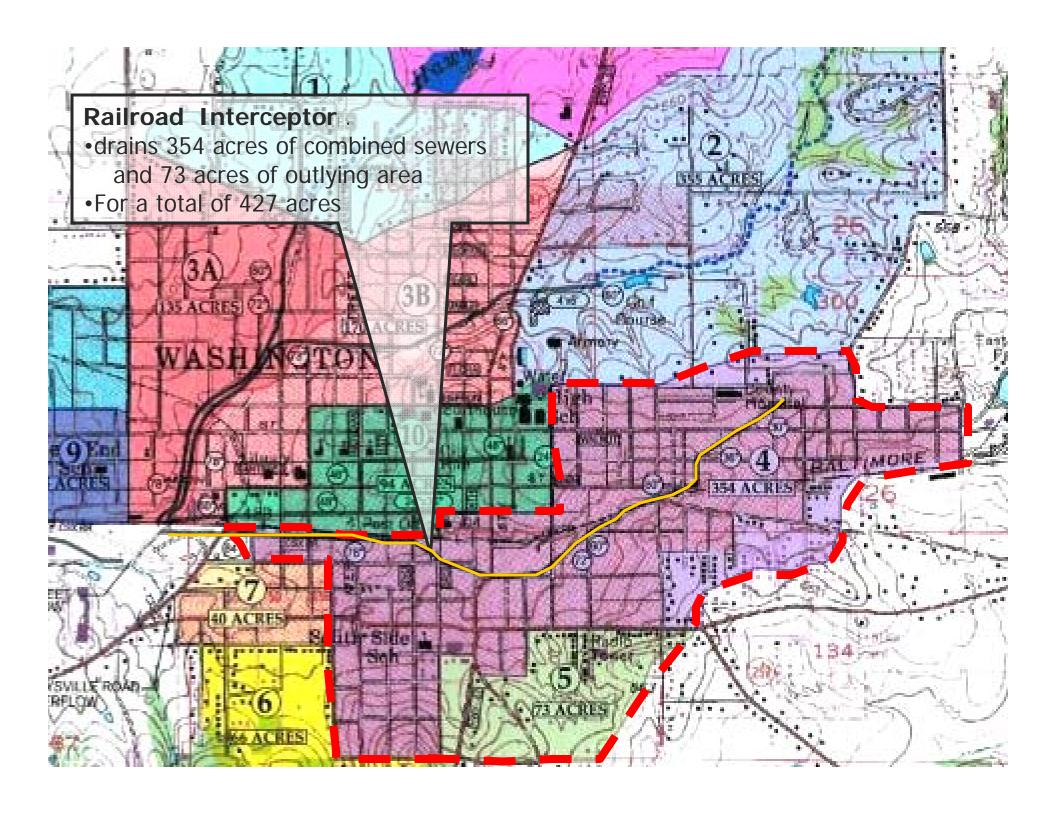
The 78" diameter interceptor also receives Combined Sewage from 170 acres of predominately residential area.

A total runoff of 650 acres drains into the Golf Course interceptor.





The 54" diameter interceptor receives Combined Sewage from 94 acres of commercial area.



The Railroad interceptor serves the combined sewers in the eastern residential area of Washington

The 84" diameter interceptor receives Combined Sewage from 354 acres of residential area.

Approximately 73 acres of additional runoff flows into the combined sewer area and enters through catch basins.

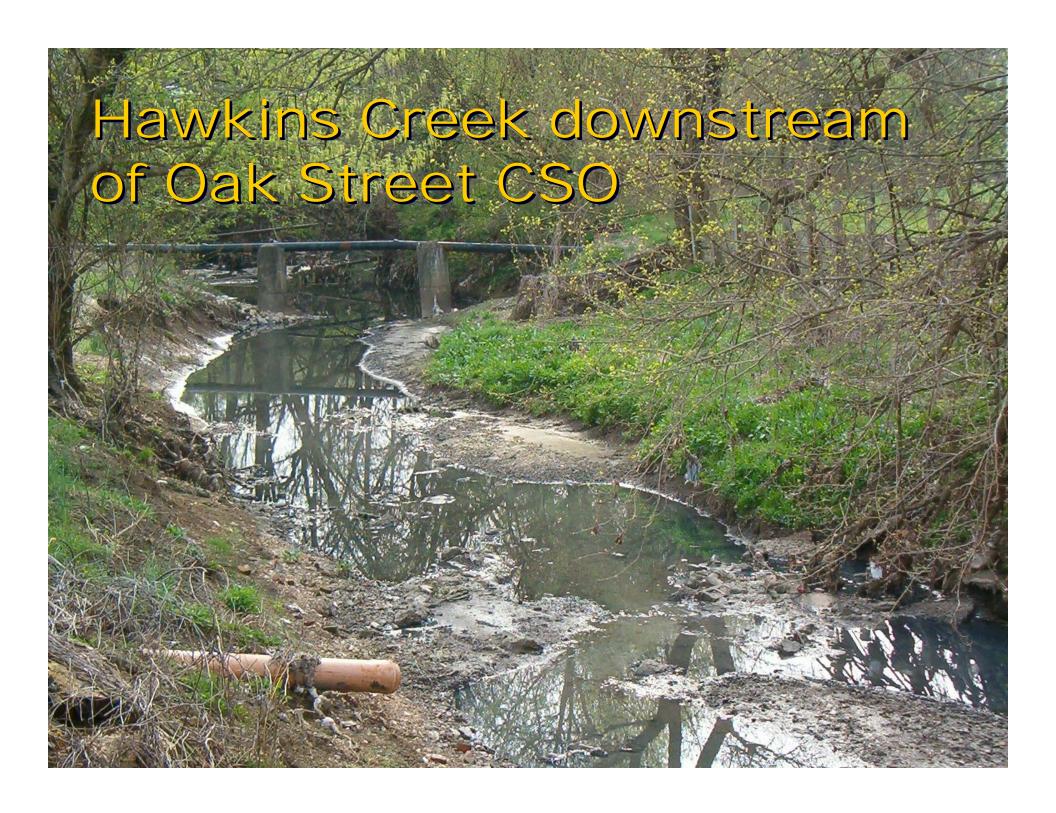
A total of 427 acres drains into the Railroad interceptor.

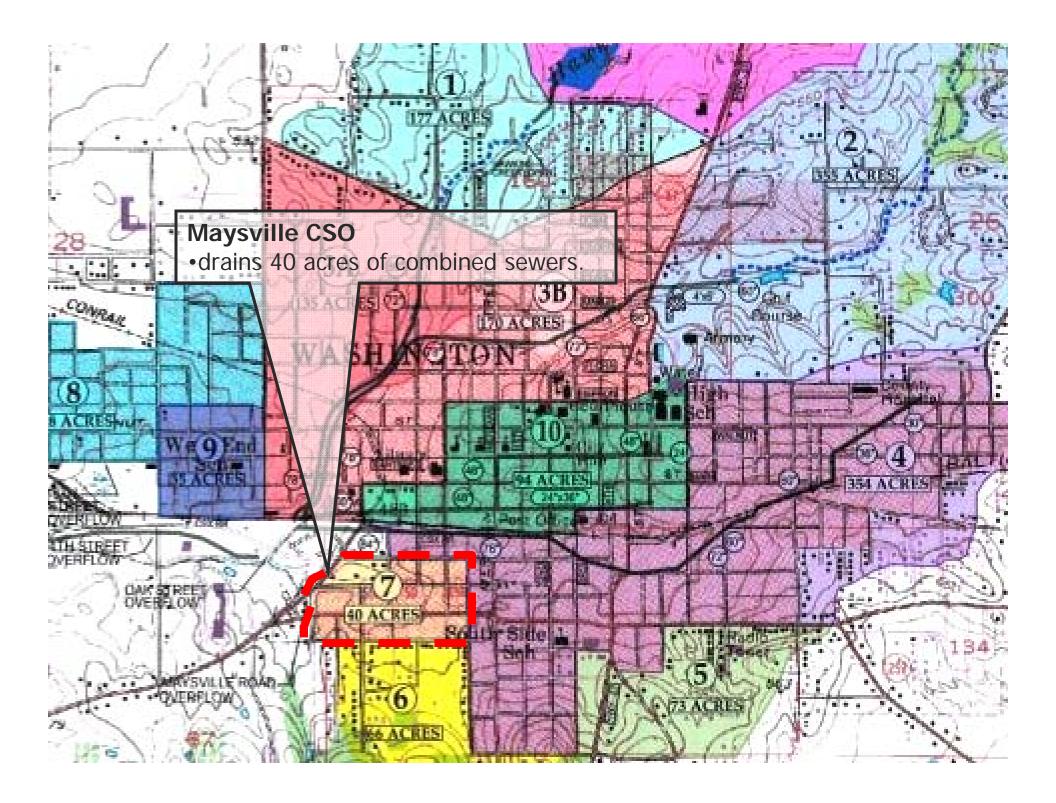
Oak Street CSO

- The Hawkins, Golf Course, and Downtown Interceptors come together on the north side of the railroad.
- The combined flow then passes under the railroad where it joins with the flow from the Railroad interceptor, and the dry weather flow from the Maysville CSO

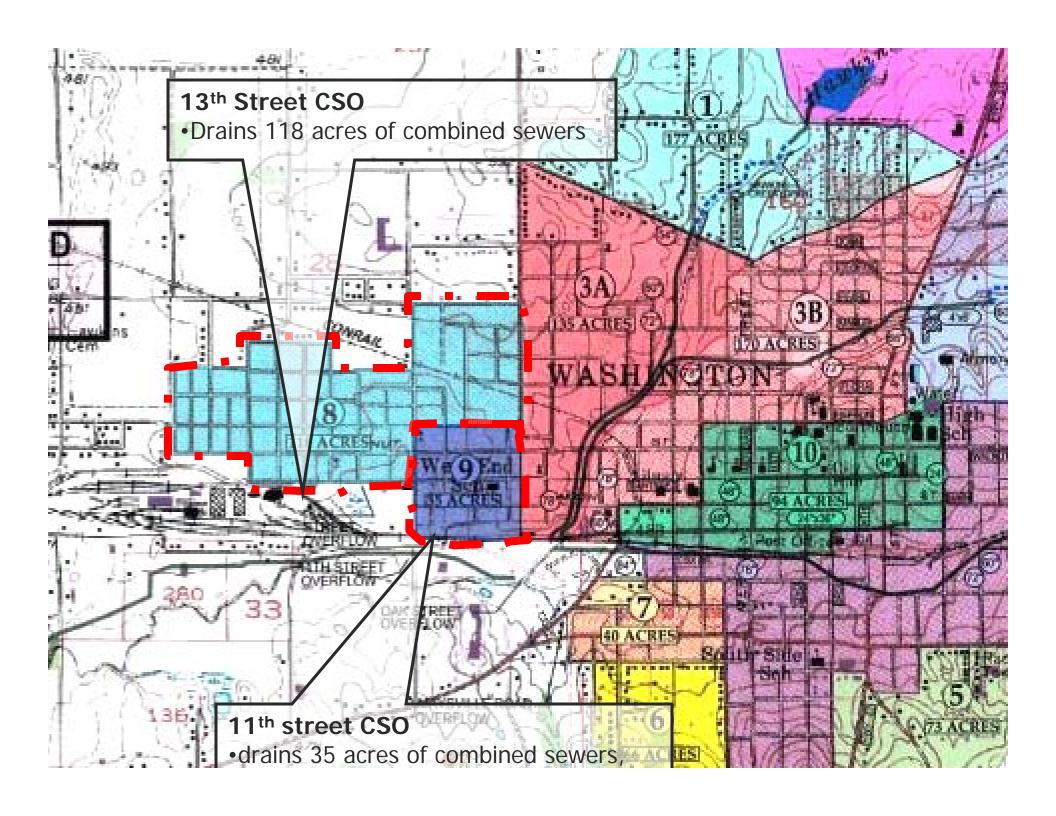
- Dry weather flow is diverted by a short dam into a 36" sewer, which flows to the Oak Street Grit Chamber.
- From the Grit Chamber a 24" sewer carries the dry weather flow to the Wastewater Treatment Plant
- Dry weather flow ranges from 2 to 4 Million Gallons per day (1,500 to 3,000 gpm)

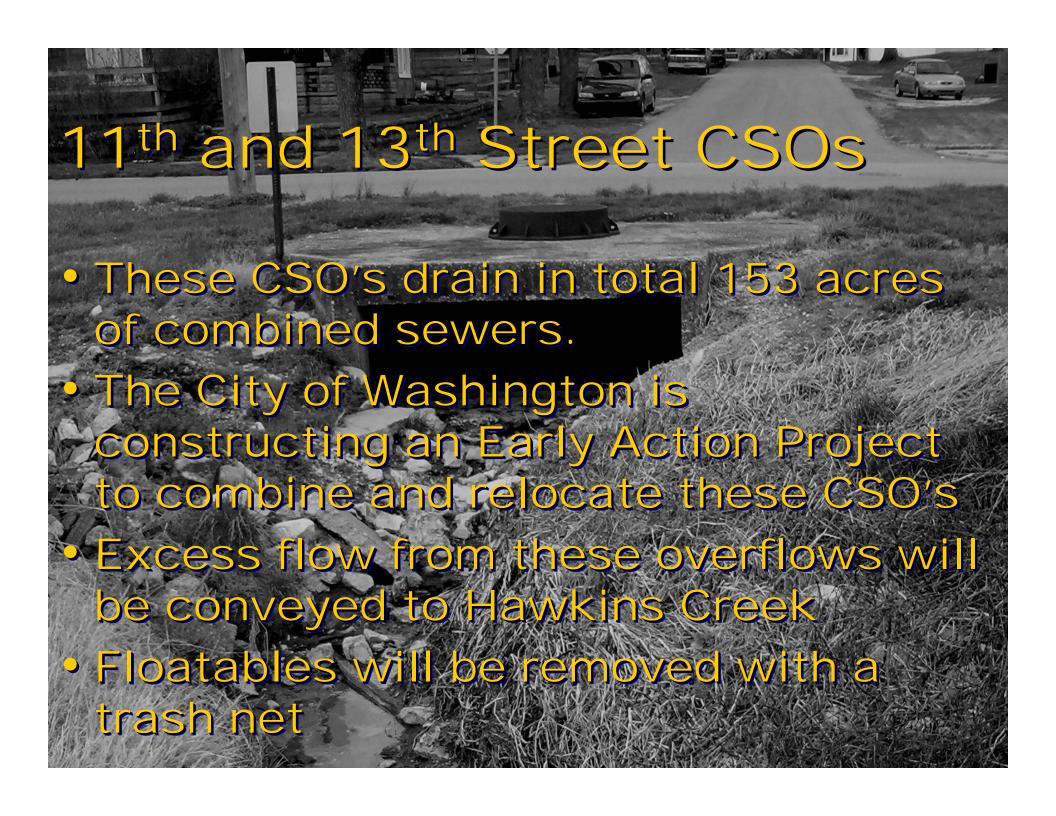
- During wet weather the 36" pipe can not carry the flow from the two 78" pipes, the 54" pipe, the 84" pipe and the 8" pipe.
- The combined storm and sewage backs up and eventually overflows the diversion dam and into Hawkins creek.
- During a 10yr/1hr storm this overflow will flow at a rate greater than 300,000 gpm (nearly 100 times greater than dry weather)

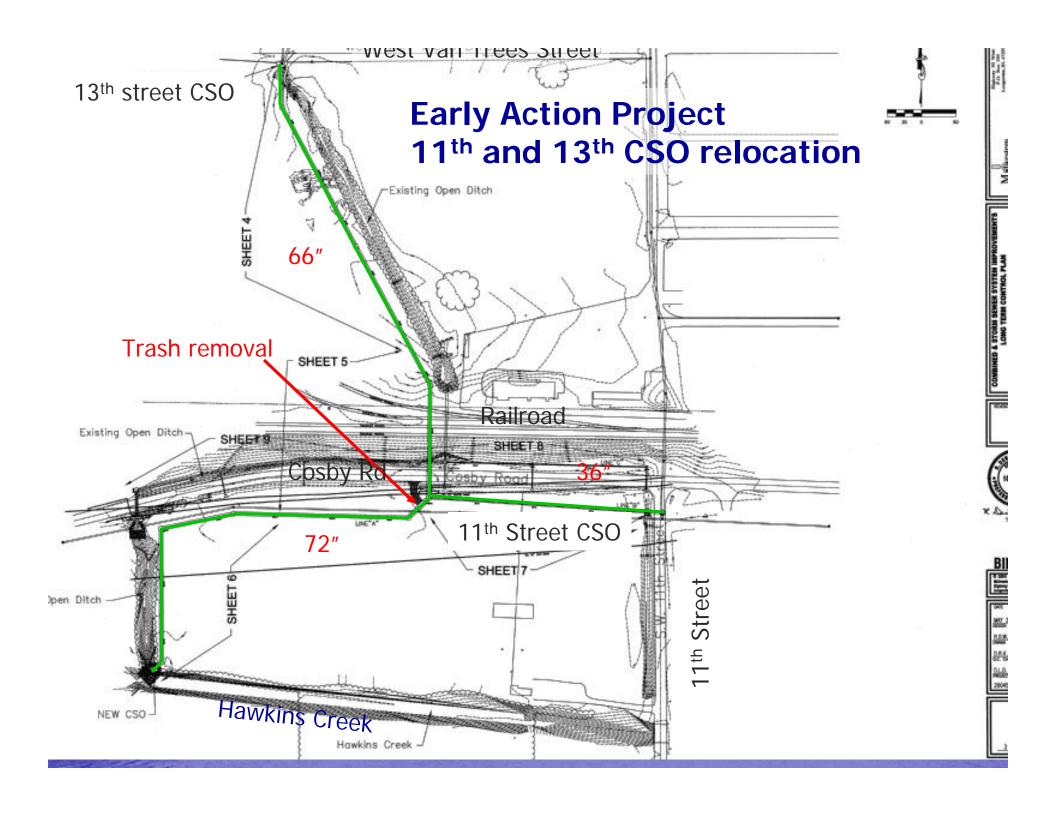












Early Action Projects

 Work is progressing on the relocation of 11th and 13th street overflows.

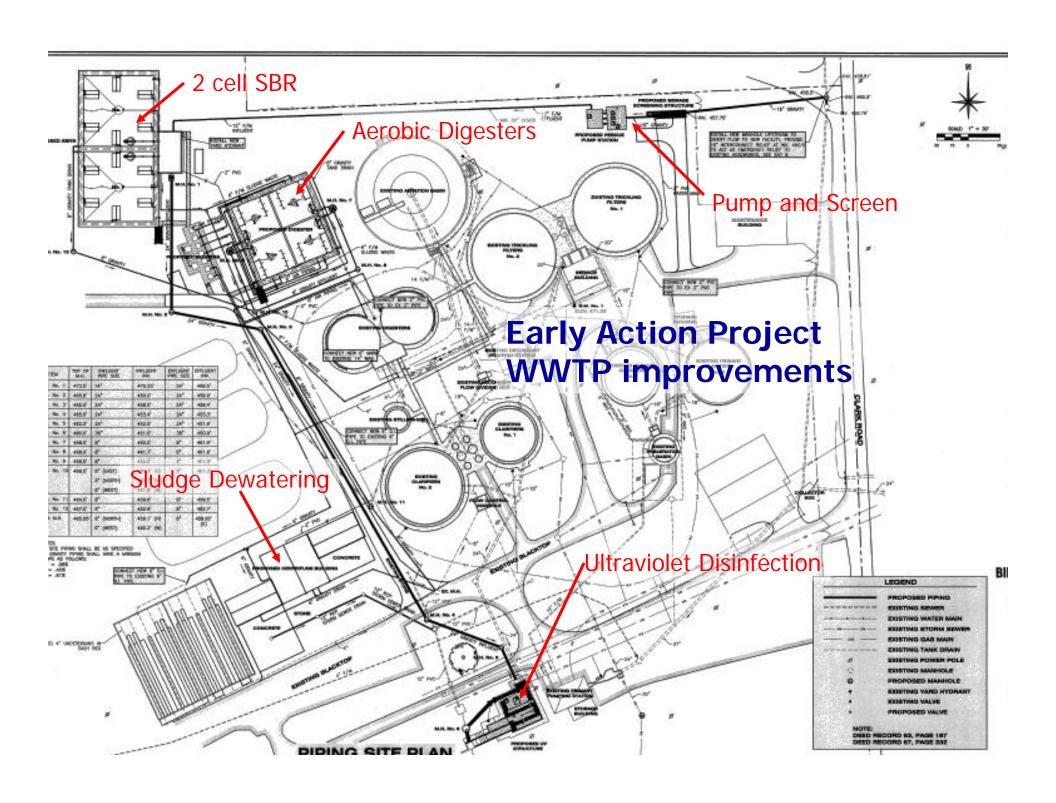






 The improvements will increase the plant's dry weather design flow rating from 1.9 to 4.2 MGD





What is our problem?

- Raw sewage overflows during rains 45 to 80 times per year
- Due to high bacteria levels and other pollutants, Hawkins Creek has never supported safe swimming or water recreation
- Hawkins Creek is on the State's list of impaired water bodies

Although sewer overflows are a large source of wet-weather pollution, other sources also contribute to water quality problems, including septic tank failures, farm chemicals, and urban storm water.

 Combined Sewer Overflows are a violation of the City's NPDES permit and State and Federal rules and regulations

What are our goals?

- Reduce raw sewer overflow volume
- Treat remaining combined sewage flows in accordance with IDEM Guidance
- Improve quality of life in our neighborhoods by reducing odors and capturing the unsightly materials found in overflowing areas
- Come into compliance with Clean Water
 Act Permit requirements

What solutions did we look at?

- Im 2002 Washington reviewed a wide variety of alternatives to eliminate or control raw sewage overflows.
- In updating our LTCP the city selected three solutions that best represented the possible solutions, and revised costs and design based upon new guidance

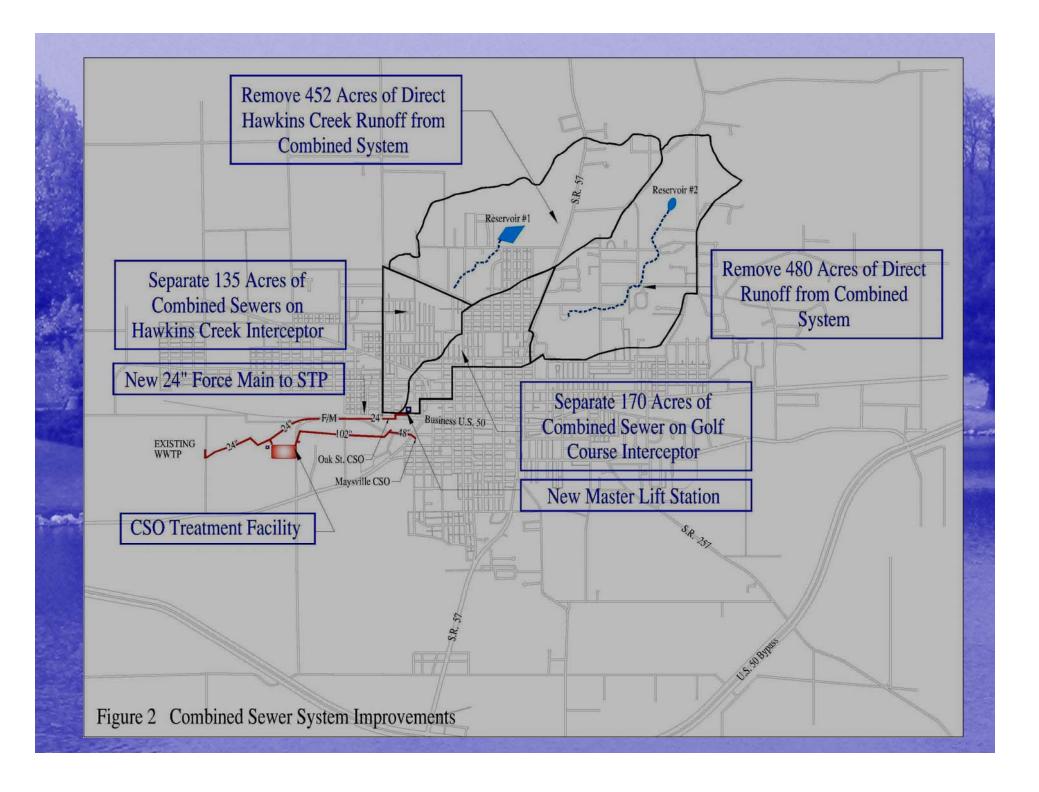
These included:

- Complete separation of all combined sewers to eliminate all CSO's
- Divert the direct inflow into both the Hawkins and Golf Course interceptors, around the combined sewers with remaining flows captured for treatment
- Separating all combined sewers in both the Hawkins Creek and Golf Course interceptors with the remaining flows captured for treatment

What are we going to do?

• The City will reduce combined storm and sewage volume by separating both the Hawkins and Golf Course interceptor areas. This will reduce drainage area from 1951 to 714 acres

 Convey and treat the remaining flows in accordance with IDEM guidance

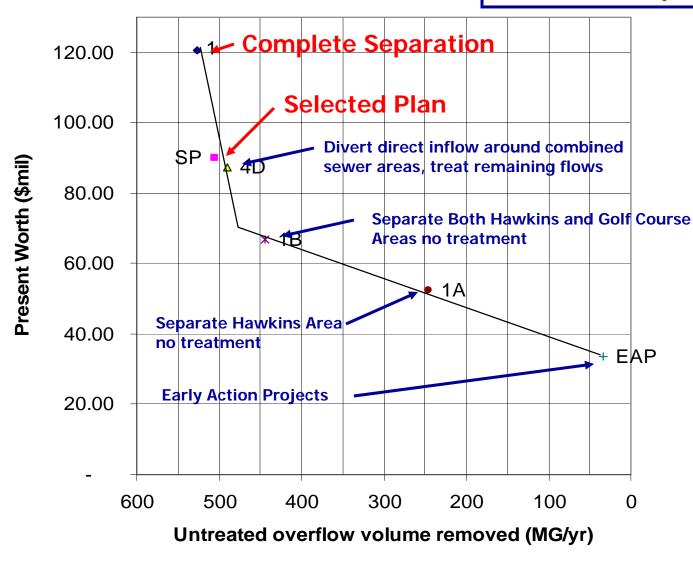


How much will it cost?

- A Cost/Performance curve was constructed to compare all alternatives.
- This curve plots the "Present Worth" of various alternatives vs. the annual volume of Untreated Overflow remaining
- This shows that the selected plan will be a bit past the point of diminishing returns, but is the least cost alternative that meets state criteria

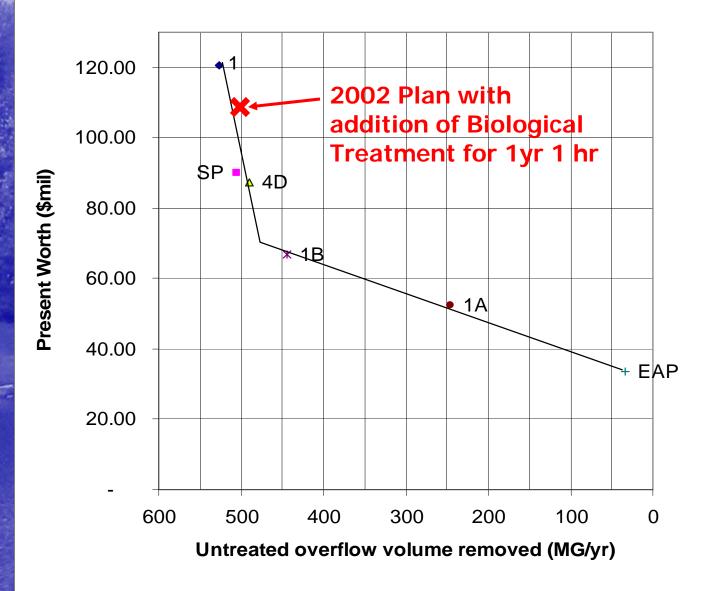
Figure 8-1 rev
Cost/Performance Curve

Only Complete Separation and the Selected Plan will satisfy IDEM criteria



8-2 rev April 2007

Figure 8-1 rev
Cost/Performance Curve



8-2 rev April 2007











Why have costs increased?

- The new criteria requiring biological treatment of flows up to a 1.3 inch/1hour storm added significant costs
- The remaining increase is due to Construction Cost escalation since the original report
- By comparison the Indianapolis LTCP cost went from \$1.1 billion (2001) to \$1.8 billion today

- Conveyance and Treatment Changes
 - 2002 plan pipe sizes 102" and 114" pond size 23 MG
 - 2002 plan increased to handle 10yr-1hr storm

pipe sizes 120" and 126" pond size 23 MG LS and FM to Expanded WTP

2007 selected plan
 pipe sizes 102" and 108"
 pond size 15 MG
 LS and FM to Existing WTP

What will be the financial impact?

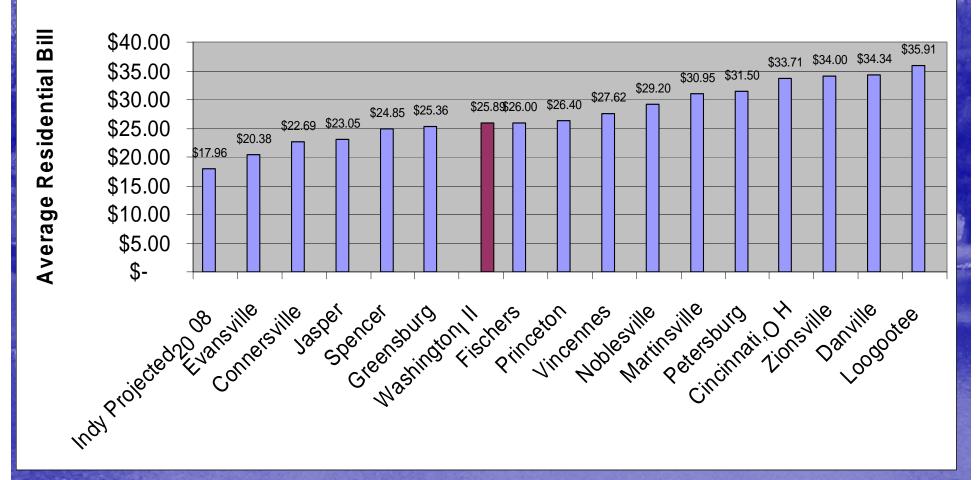
- Using IDEM and EPA's guidance the economic impact of this work will be "high" with a calculated Wastewater Cost per Household Indicator (WWcphi) of 6.6% of Median Household Income
- By comparison the LTCP for Indianapolis reports a WWcphi varying from 2 to 5% depending upon township





Upon completion of the Early Action Project Washington's average residential rate will still be among the most affordable in the state.

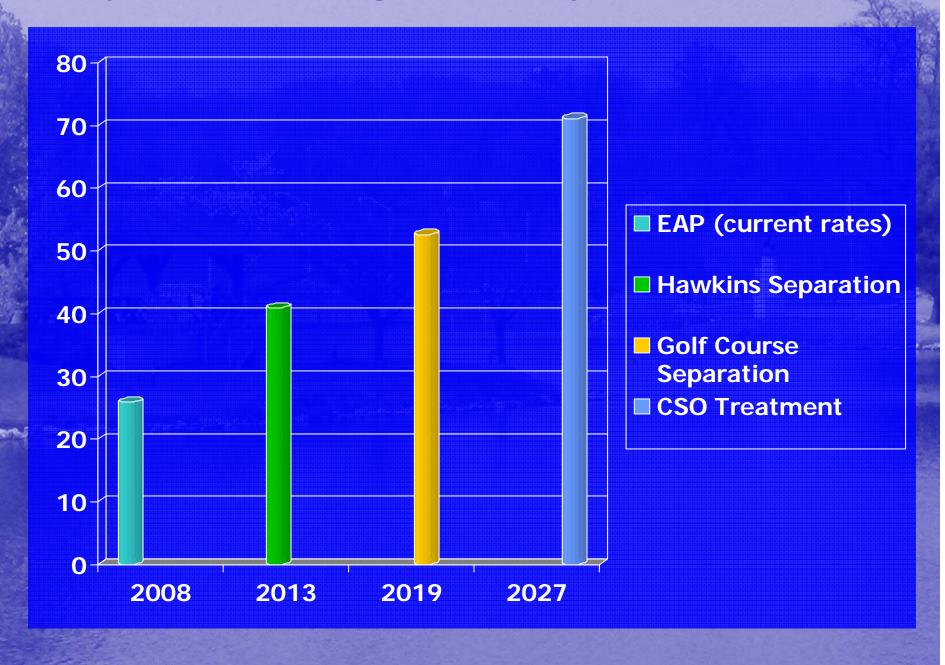
Figure 3 Comparative Billings of Other Communities



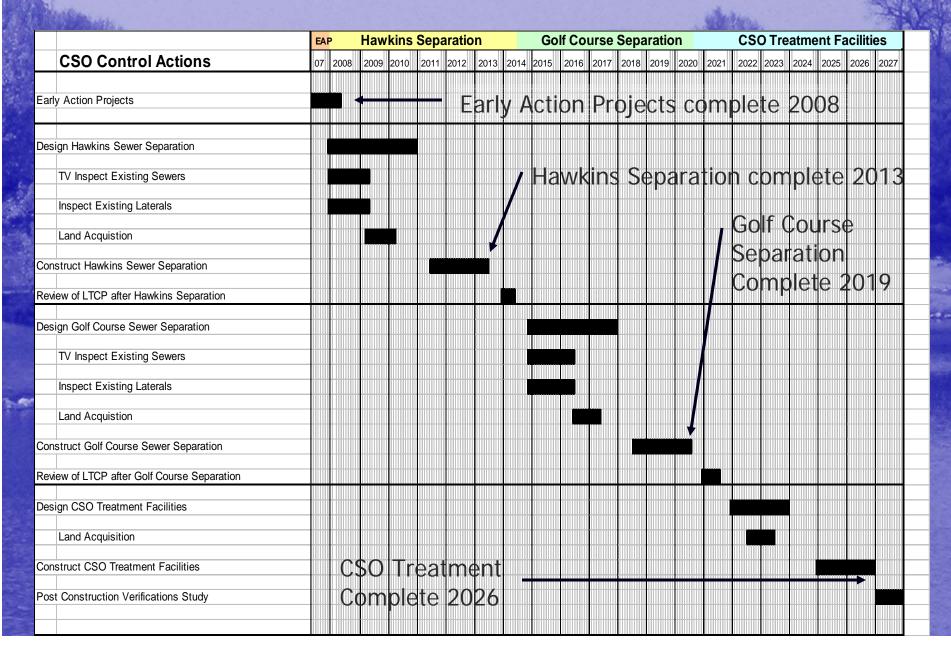
Projecting actual rate increases 20 years into the future is speculative. Factors such as inflation, population growth, interest rates, and changes in regulations are impossible to predict.

For purely discussion purposes, average monthly rates have been estimated assuming work was all completed in 2007

Projected Average Monthly Rates (4,900 gallons)



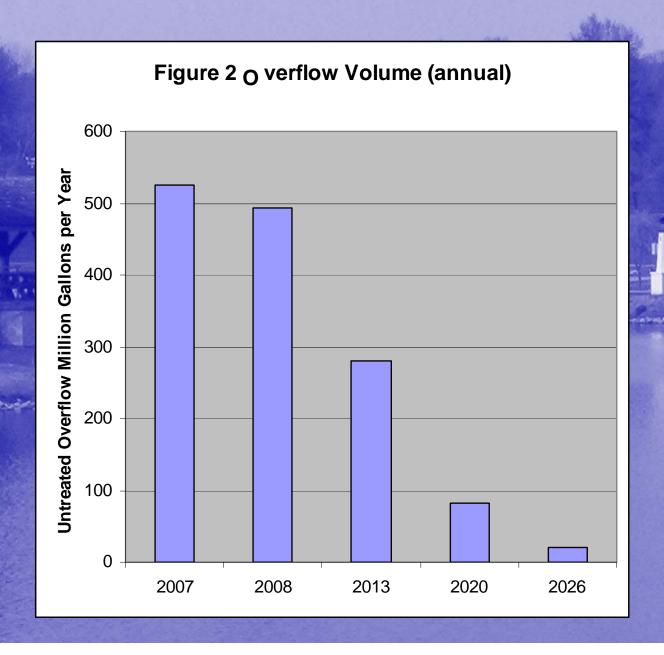
How long will it take?



What benefits will we see?

- Upon completion Washington will be in compliance with the Clean Water Act
- Sewage overflowing into Hawkins Creek will be greatly reduced
- E coli bacterial levels and other pathogens in Hawkins Creek will be reduced
- Odors, untreated sewage and trash in Hawkins Creek will be significantly reduced

Untreated Overflow Volume will be reduced



How will we monitor our progress?

- A monitoring program will be implemented by the Wastewater
 Department to measure the performance of new facilities and pollution levels in each outfall
- Periodically monitoring data will be analyzed to see if the plan is achieving the desired result



What difficulties will we see?

 Managing the Financial and Rate impact on the Washington homes and businesses will be the largest difficulty encountered

Washington cannot afford to capture and treat its CSO's in accordance with IDEM CSO treatment policy. Therefore, it will be necessary for the City to go the UAA route.

Use Attainability Analysis?

- Will this work for the City?
- A UAA documents the actual or existing use of the receiving stream, the use could be supported by the current water quality, and the financial capability of the community to construct improvements needed to achieve the designed use.

LTCP Update Again

If supported by a UAA, the documentation for a request of the designated use of Hawkins Creek to be changed to CSO Wet Weather limited Use subcategory would be submitted to IDEM along with a revised LTCP that reflects the improvements that could be constructed without a financial hardship.

The City has retained the services of a rate accountant to help put together the Financial Capability documentation. With the input of the rate accountant the draft LTCP will be revised to include additional alternatives. These will include partial separation and or partial treatment alternatives that fall short of IDEM's treatment guidance.

The LTCP will document that the 9
minimum controls are being implemented,
and that elimination and or treatment has
been maximized while keeping project
costs at the hardship level.

 EPA region 5 has agreed to help with this as we prepare our plan.

Conclusion

 The City Of Washington will need to go down the uncertain path of preparing a UAA and request a Wet Weather Limited Use Subcategory. In the process we will identify and implement the maximum degree of treatment that can be feasibly accomplished without causing widespread economic hardship to our citizens.

How can the public learn more?

The LTCP will be available for review at the City Hall, and at the Wastewater Department during normal hours:

Wastewater Treatment Plant 169 South 200 West Washington, IN 47501

